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"A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION EDUCATION COMMUNICATION (IEC) PACKAGE ON PREVENTION OF PERIODONTAL DISEASE AMONG ANTENATAL MOTHER AT PADI HEALTH POST IN CHENNAI"

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ABSTRACT

Introduction

Pregnancy and child birth are special event in women's life and indeed in the lives of their families. Pregnancy needs unique attention from the time of conception to the postnatal stage. Process of promoting health maintenance, assessing physical and psychological changes, providing support for self care and assessing the women to maintain a healthy lifestyle during pregnancy are important nursing measures. Improved prenatal care has significantly reduced in infant and maternal mortality. Detecting potential problems early leads to prompt assessment and treatment which greatly improves the pregnancy outcome.

Statement of the Problem

"A study to assess the Effectiveness of Information Education Communication (IEC) package on prevention of periodontal disease among Antenatal Mother at Padi Health Post in Chennai".

Objectives of the Study

The objectives of this study is

- ***To assess the level of knowledge regarding periodontal disease among antenatal mother in the pretest.***
- ***To determine the effectiveness of Information Education Communication package on prevention of Periodontal disease among antenatal mothers.***
- ***To associate the post test knowledge regarding periodontal disease and the selected demographic variables.***

Hypothesis

There is a significant difference in the level of knowledge regarding the prevention of periodontal disease among antenatal mother after IEC.

Assumption

- ***Health awareness is the base for health practice.***
- ***Health education promotes changes in health seeking behavior.***

Conceptual Frame Work

The conceptual framework of the present study was modified by the investigator based on "Imogene King's goal attainment Model".

This model focuses on the concept of personal and interpersonal relationship including interaction, perception, communication, transaction role between the investigator and antenatal women in the selected hospital, Padi Health

Original Article

Post in Chennai

Research Methodology

Pre Experimental research design was used. The data were collected from 60 antenatal mothers in outpatient department of Padi Health Post, Chennai. Purposive sampling technique was used. After selecting, informed consent was obtained from each sample, privacy and confidentiality was maintained. After assessing the level in pretest, Information Education Communication package was administered.

Major Finding

The findings related to demographic obstetric variables in this were age 45 (75%) belongs to 21 -24 years, 12(20%) belongs to 25-28 years, three samples (5%) belongs to >28 years. In religion 44 (73.3%) belongs to Hindu, six (10.0%) belongs to Christian and ten (16.7%) belongs to Muslim. Considering education 19(10%) had no formal education, 18(30%) had primary education, 15 (25%) had secondary and eight (13.3%) had collegiate education. Regarding occupation 51 (85%) were housewife, four (6.7%) are coolie and five (8.3%) were private employee. 30 (50%) had family income below Rs.3000, 22 (36.7%) had Rs.3001-4000, five (8.3%) had Rs. 4001-5000, three (5%) had above Rs.5000. One (1.7%) had dental problem and 59 (98.3%) does not have any dental problems. 49 (81.7%) were primigravida and eleven (18.3%) were multigravida.

The study revealed that in 60 samples, in pretest, 43 (71.7%) had inadequate knowledge, 11 (18.3%) had moderately adequate knowledge and six (10.0%) had adequate where as in posttest, four (6.6%) had inadequate knowledge, 22 (36.7%) had moderately adequate knowledge and 34 (56.7%) had adequate knowledge regarding Prevention of Periodontal Disease

IEC Package on Periodontal Disease	Level of Pretest Knowledge		Level of Posttest Knowledge	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Inadequate Knowledge	43	71.7	4	6.6
Moderately Adequate Knowledge	11	18.3	22	36.7
Adequate Knowledge	6	10.0	34	56.7
Total	60	100.0	60	100.0

Effectiveness of Pretest Knowledge and Posttest Knowledge on Periodontal Disease among Antenatal Mother (N=60)

Group	MEAN	SD	t-Value
Pretest Knowledge	44.00	18.64	14.851
Posttest knowledge	75.93	16.17	

S–Significant difference between Pre and Post Test Knowledge [P < 0.05]. Our calculated p value is 0.0001 which is lesser than the 0.05.

In that 60 samples, pretest mean deviation was 44.000 with standard deviation of 18.6457. In post test mean deviation was 75.933 and standard deviation was 16.1768. Significant difference between Pre and Post Test Knowledge [P < 0.05].

The association between posttest level of knowledge and selected demographic variables among antenatal mothers shown that there was no association between level of knowledge and demographic variables such as age, sex, educational status, religion, occupation, income and obstetrical status among antenatal mothers at the level of P<0.05 by Chi Square test.

KEYWORDS: Periodontal Disease, Information Education Communication (IEC) & Health Education

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INTRODUCTION

"Pregnancy is Special, Let's Keep it Safe." - WHO 1998.

Pregnancy and child birth are special event in women's life and indeed in the lives of their families. Pregnancy needs unique attention from the time of conception to the postnatal stage. Process of promoting health maintenance, assessing physical and psychological changes, providing support for self care and assessing the women to maintain a healthy lifestyle during pregnancy are essential nursing actions. Improved prenatal care has dramatically reduced in infant and maternal mortality. Detecting potential problems early leads to prompt assessment and treatment which significantly improves the pregnancy outcome.

Consideration with general health, Oral health is also an vital aspect getting increased recognition for the part of health of women and children. Because maternal oral health has important implications for birth outcomes and infant oral health Maternal periodontal disease is a chronic infection of the gingival and supporting tooth structures, has been associated with preterm birth, preeclampsia, and delivery of a small-for-gestational age infant. Maternal oral flora is transmitted to the newborn infant, and increased carcinogenic flora in the mother predisposes the infant to the growth of caries.

Many women lack access to dental care and dental insurance, which affects their ability to receive adequate oral care during pregnancy. Intraoral changes that occur with pregnancy because of hormonal changes joint with lack of routine exams and delays in treatment for oral disease, place pregnant women at higher risk for dental infection.

According to research studies, periodontal disease also has the potential to affect pregnancy outcomes. It has been demonstrated that periodontal pathogens within dental plaque are able of invading host periodontal tissues, resulting in recurrent bacteraemia, which extend to distant tissues and activate the hepatic acute phase response, especially during periods of disease progression (Offenbacher et al., 2006). The biological mechanism connecting periodontal infection and preterm birth can begin with endotoxins resulting from gram-negative bacterial infections, which motivate the production of cytokines and prostaglandins. It is known that prostaglandins and certain cytokines (interleukin-1b, interleukin-6 and tumor neucrosis factor-alfa), in satisfactory quantities, may stimulate labour (Jeffcoat et al., 2001).

The concept that the periodontal disease might manipulate systemic health is not new. "Focal infection therapy" MILLER suggesting that "micro-organisms or their waste products get entrance of parts of the body adjacent to or remote from the mouth. Before the progress of modern periodontal treatments, the teeth were extracted prophylactically because of the focal infection therapy. Epidemiological and microbiological immunological studies have lent acceptance to the concept that periodontal disease may be a risk factor for cardiovascular disease, cerebrovascular disease and respiratory disease, preeclampsia, as well as preterm delivery of low birth weight infants.

Health care providers should be educated Antenatal women to understand the risks of oral health complications during pregnancy. Pregnancy offers an opportunity to educate women regarding oral health and treat them where proper. Many researches are ongoing to explain the role of maternal oral health care in pregnancy outcomes and opportunities for positive intervention.

NEED FOR THE STUDY

"*Take care to be born well*."

-George Bernard Shaw

Periodontal disease is the second most common oral disease in the world. It consists of a bacterial inflammatory process in the periodontal tissue that results from the growth of dental plaque on the external surface of the tooth. The incidence of this condition is associated with low socio-economic levels, difficulty in accessing health services and health related behavior such as smoking, alcohol use, carbohydrate rich diets and poor oral hygiene.

Jared, Heather, Boggess,et all (2008) conducted a study to explore the efficiency of the applied preventive measures during pregnancy and to improve oral health status to pregnant women. Oral health status of 180 pregnant women was assessed according to WHO criteria. The Oral health status was evaluated 3 times during pregnancy. Reduction in dental caries of the test group was 56.25 % in comparison with the control group. The periodontal status has enhanced, oral hygiene index (OHI-S) has decreased from 1.48±0.05 to0.94±0.06 in the test group, and from 1.49±0.06 to 1.9±0.06 in the control group. The results of the study showed that selected dental caries preventive measures were effective and considerably improved women's oral health during pregnancy.

Pregnant women with periodontal disease may be at increased risk for getting preterm low birth weight (PLBW) children. It has been suggested that effect of periodontal disease on PLBW could result from encouragement of fetal membranes on prostaglandin synthesis by cytokines produced by inflamed gingival tissues or through the effect of endotoxin derived from periodontal infection. Endotoxin derived from periodontal pathogens in women with periodontal disease strength signal preterm labor through primed monocyte macrophage activation in peripheral blood and deciduas. If the relationship between maternal periodontal disease and preeclampsia and PLBW risk proves casual in nature, treatment of periodontal disease during pregnancy may represent a novel approach to the avoidance of preeclampsia and PLBW (journal of periodontology, vol.44.2007.)

Oral health and its relationship to systemic health is significant to society because up to 90% of the worldwide population is affected by periodontal disease either gingivitis or periodontitis. Reports indicated that up to 30% of the general population has a hereditary predisposition to periodontitis and a conservative estimate is that over 35 million people in the United States have periodontitis. It is estimated that over 50% of pregnant women suffer from some form of gingival disease, either gingivitis or periodontitis, with the reports of incidence fluctuating between 30%-100% for gingivitis and 5%-20% for periodontitis.

Periodontal awareness and health knowledge to assess the patterns of dental attendance behaviors among 20 to 60 year-old Jordanian adults. A questionnaire which incorporating items related to personal and socio-demographic data, periodontal awareness and health knowledge, and self-reported dental attendance behaviors has administered. In this study 743 questionnaires were completed and statistically analyzed. Study showed that, the majority of adults wrongly defined the meaning of dental plaque and did not know its role in the cause of gingival disease. Majority of participants (60.8%) were alert that gingival bleeding upon brushing indicated the presence of periodontal disease that can be prevented by brushing and flossing (63.4%), mainly before going to bed (73.9%).Study concluded that knowledge and awareness concerning periodontal disease is very poor and they need more dental health education to improve oral health.

The study aimed to understand the evidence of associations between periodontal disease and adverse pregnancy outcomes. Offenbacher and colleagues were the first to report data that suggested periodontal diseases could unrecognize and clinically significant risk factor for preterm low birth weight in humans. Efforts are required to instruct pregnant women about the biologically possible role of periodontal infections leading to adverse pregnancy outcomes. Thus the researcher suggested definite need to educate pregnant women about oral health problems during pregnancy and preventive measures for ensuring healthy pregnancy and neonatal outcome.

STATEMENT OF THE PROBLEM

A study to assess the Effectiveness of Information Education Communication (IEC) package on prevention of Periodontal disease among Antenatal Mother at Padi Health Post in Chennai.

OBJECTIVES

The objectives of this study is to

- Assess the level of knowledge regarding periodontal disease among antenatal mothers in the pretest.
- Determine the effectiveness of Information Education Communication (IEC) package on prevention of periodontal disease among antenatal mothers.
- Associate the post test level of knowledge and the selected demographic variables.

HYPOTHESIS

There is a significant difference in the level of knowledge regarding the prevention of periodontal disease among antenatal mother after IEC.

ASSUMPTION

- Health awareness is the base for health practice.
- Health education promotes changes in health seeking behavior.

OPERATIONAL DEFINITION

Assess: It refers to the way of finding level of knowledge as expressed by Antenatal mother on Periodontal disease during pregnancy.

Effectiveness: It refers to the changes in the knowledge level of antenatal mothers regarding periodontal disease, compared with pretest knowledge.

Information Education Communication (IEC) Package

It refers to a well –planned instruction designed to provide information regarding periodontitis, risk factors, signs and symptoms, diagnostic evaluation, treatment, preventive measures of disease and early detection.

Periodontal Disease: It is bacteria induced localized, chronic infection of gums, bones and around the supporting tooth structure.

Antenatal Mother

All Pregnant women irrespective of gestational age.

DELIMITATION

- The study is delimited to all antenatal mothers who are registered irrespective of gestational age. Most of the practices in prevention of periodontal disease were elicited only from verbal responses.

PROJECTED OUTCOME

- The study helps the antenatal mother to gain adequate knowledge on prevention of periodontal disease.
- The findings on socio demographic characteristics would help to identify the factors which affect the level of knowledge among antenatal mothers.
- The Information Education Communication Package provided to the antenatal mothers will motivate them to utilize the knowledge wherever necessary.

REVIEW OF LITERATURE

Part-I: Literature Related to this Study - Part-I

Review of literature is an important step in the development of a research project. It involves systematic identification, location, scrutiny and summary of written materials that contain information on research problems (Polit and Hungler 2000).

The Related Studies are presented under the Following Sub Headings - Part-I

- Literature related to prevalence of oral health problems during pregnancy.
- Literature related to ill effects of oral health problems during pregnancy and its outcomes.

Conceptual Framework - Part-II

- **Literature Related to Prevalence of Oral Health Problems During Pregnancy**

Baskaradoss JK, Geevarghese A, Kutty VR.et al.(2011) conducted a study to findout the association between maternal periodontal disease and preterm delivery in Kerala, India. The case–control study had a sample of 300 (100 cases and 200 controls) postpartum women over 18 years of age. Periodontitis was diagnosed in 25% of the mothers in the experimental group and in 14.5% of the mothers in the control group. The results indicated a 3 times of risk for preterm delivery in mothers with periodontitis.

A New National Consumer usage and Attitudes Survey (2009) was conducted across 233 cities in India, revealed that dental problems due to the low awareness levels and poor oral hygiene habits in people. Survey showed that people do not associate dental health with adequate oral care but associate dental problems with lifestyle related habits like ‘improper eating habits’ and ‘being born with bad teeth’, in rural areas. The Survey also revealed that almost 30% did not use any modern oral care products and the incidences were higher in rural areas. In the urban areas, 7% did not practice any of the modern oral care products. In the rural areas, 37% of people still use non-dentifrice products such as Neemstick (Datun), charcoal and ash. 60% of had never consulted a dentist and only 2% consulted a dentist regularly. Over 50% were

unworried about preventing or curing dental problems. The Survey also revealed that 24% of consumers affected from toothache in the past 1 year and 96% were alert of the problem, but only as few as 35% had taken treatment from a dentist. This survey concluded that 74% aware of the prevalence of swollen gum, but 66% were unconcerned, 78% aware of the prevalence of treatment but 63% were unconcerned.

Al-Habashneh (2008)."Journal of Dental Science and Research" India conducted a study on oral hygiene, gingival and periodontal status and to findout the association of socio-demographic factors on the oral hygiene status among pregnant women in varying stages of pregnancy attending the district maternity hospital. Study concluded that Gingival and periodontal status deteriorated as the trimester of pregnancy proceeded and various socio demographic factors in addition to trimester considerably influenced oral hygiene status. So oral health intervention programs should be targeted to the risk groups.

Rakcaanok N,(2008)."National Center for Health Statistics", Thailand conducted a study to identify dental caries and gingivitis among pregnant women, and to compare with non-pregnant women. Data were gathered from 197women (94 pregnant and 103 non-pregnant). The resuts showed that 74.0% of pregnant women had caries, and 86.2% had gingivitis. There were significant differences between pregnant and non-pregnant women with regard to dental caries (p<0.001) and gingivitis (p=0.021). The pregnant women were 2.9 times more suffer from dental caries and 2.2 times more from gingivitis compared to non-pregnant women. The study recommended that most women should be trained in proper oral hygiene practices and community awareness programs should be conducted to improve women's awareness of such hygienic practices.

- **Literature Related to Ill Effects of Oral Health Problems during Pregnancy and its Outcome**

Gandhimadhi.d, R.Mythili.(2011) conducted a case control study on the association between periodontal disease and preterm low birth weight at government maternity hospital, Pondicherry among 211 mothers between the ages of 17 and 35 and they were grouped into two categories based on the gestational age and weight of the baby as cases (< 37 weeks, < 2500g) and control (> 37 weeks, > 2500g). The study concluded that periodontal disease is a contributing factor for preterm low birth weight.

Marc J.N.C. Keirse (2010) conducted a study on pregnant women's opinions on and perceptions of oral health and their relationship to oral hygiene and dental care practices among 649 nulliparae attending for antenatal care at all public antenatal clinics in Adelaide, South Australia. Women rated their general health significantly enhanced than their oral health (P-0.001).Results showed that 35% had dental care during pregnancy, 35% had no dental visit for at least two years. 18% women had experienced gingival bleeding before pregnancy and 41% during pregnancy. Gingival bleeding outside pregnancy was clearly related to perceived oral health (P-0.001), but this was fewer so for bleeding during pregnancy. The Gingival bleeding was not related to age, level of education, employment, marital status, or smoking habits. 38% of women with gingival bleeding in pregnancy had a dental care visit in pregnancy and 28% considered their oral health as very good. The study recommended that maternity care providers need to devote more attention to oral health in antenatal clinics and antenatal education.

Wilder, Rebecca, (2009)"American Acadamy of periodontology" USA conducted a case-control study of on the prevalence of maternal periodontal infection could be associated with preterm low birth weight (PLBW), preterm labor (PTL), or premature rupture of membranes (PROM) among 124 pregnant or postpartum mothers. Controls group were

normal birth weight infants (NBW).The results showed that PLBW cases and primiparous PLBW cases (n = 93) had significantly poorer periodontal disease than the respective normal birth weight (NBW) controls. Results showed that periodontal disease is a statistically significant risk factor for PLBW with odds ratios of 7.9 and 7.5 for all PLBW cases and primiparous PLBW cases. This study concluded that the periodontal diseases represent a previously unrecognized and clinically significant risk factor for preterm low birth weight as a outcome of either PTL or preterm PROM.

Balwant Rai,,. et.al.(2008) conducted a study on periodontal disease as a risk factor for onset of preeclampsia and fetal outcome. The study found that preclampsia and preterm delivery of low birth weight infants (PLBW) is a significant public health issue and a leading cause of neonatal death and long-term neuro-developmental disturbance and health problems. The study suggested that periodontal disease may be an independent risk factor for preeclampsia and low birth weight babies. Inflamed periodontal diseases produce significant amounts of pro-inflammatory cytokines, mainly interleukin, beta, IL-6, prostaglandin E2, and tumor necrosis factor alpha which may have adverse effect in pregnancy.

CONCEPTUAL FRAMEWORK

Conceptual framework perform as a building block for the research study. The purpose of framework is to create scientific finding meaningful and generalized. It provides a certain framework of reference for clinical practice, education and research. Framework can lead the researcher's undertaking not only 'what' of natural phenomena but also 'why' of their occurrence.

(Polit and Hungler2000) The conceptual framework of the present study was modified by the investigator based on **"Imogene King's goal attainment Model".**

This model focuses on the concept of personal and interpersonal relationship including interaction, perception, communication, transaction role between the investigator and antenatal women in the selected hospital, Padi Health Post in Chennai

Perception

Perception is a process in which data obtained through the senses and from memory are ordered interpreted and transformed which are related to past experience. Concept of the self and educational background.

In this present study investigator perceives the need to gain knowledge and acquire ability to prevent effects of Periodontal disease and improve the life of antenatal mothers.

Action

A person provides information directly or indirectly to another person. The other person receives this information and processes it.

During the action phase, the investigator administers the structured interview questionnaire to assess the knowledge regarding Periodontal disease and antenatal mothers are motivated to gain knowledge by Information Education Communication Package. It consists of self administered questionnaire on periodontal disease, knowledge assessment which includes sub-topic of causes, clinical features, diagnostic studies, treatment, prevention and control.

Interaction

It is the process of perception and communication between person and person. Person and environment represented by verbal and nonverbal behaviors that are goal directed.

In the present study during the interaction, the investigator after administration of Information Education Communication (IEC) Package to Antenatal Mother, discussion and clarification was given by investigator. As a result of this teaching programme, antenatal mother and the investigator enter in to the transaction phase.

Transaction

It is an observable behavior of the Antenatal mother's interaction with their environment. When interaction occurs between the Antenatal mothers and researchers, goals are attained.

In this present study, the antenatal mother gain adequate knowledge regarding definition, causes, clinical features, diagnostic studies, treatment, prevention and control of periodontal disease. And also about the prevention of periodontal disease thus they can improve their quality of life.

RESEARCH METHODOLOGY

Research Design

The research design selected for this study is pre-experimental design (one group pretest-post test design).

Table 1

Sl. No	Groups	Pre Test	Intervention	Post Test
1	1	Q1	X	Q2

Q1- Pre-test assessment of knowledge, X- Administration of IEC & Q2 – Post test assessment of knowledge

Setting

Setting of the study refers to, the area where the study is conducted. This study was conducted at Mogappair east, Padi health post, Ambattur zone – 7, Chennai. It is around 40kms from Saveetha College of nursing. This zone covers the total population of 9000. Majority of the people belong to low socio economic status. The health post offers services like family welfare, pharmacy, counseling centers and conducts outpatient clinic for antenatal mothers, newborn and elders. The centre has labour room, operation theater, ultrasonography etc. The staffs working in this center are 2 medical officer, 1 community health nurse, 2 sector health nurse, 9 village health nurse, 3 staff nurse and 1 pharmacist. Antenatal outpatient department is conducted on Monday, Wednesday and Saturday from8.30am to 1.00p.m and 2.00 to 4.00 pm in these centre.15-20 antenatal mothers attend the clinic daily. Per month: 240-250 antenatal cases. In that 150- 200 patients are primigravida.

Population

The target population was all antenatal mothers attending the antenatal clinic at Padi Health Post in Chennai.

Sample

The sample for this study consists of all registered Antenatal mothers irrespective of gestational age attending the antenatal outpatient department of Padi Health Post.

Sample Size

The sample size consists of 60 antenatal mothers.

Sampling Technique

The sampling technique for this study was purposive sampling technique.

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

- Antenatal mother who register for the first time irrespective of Gestational age, in the outpatient department.
- Antenatal mother who are willing to participate in the study.
- Antenatal mother who understand the language Tamil well.

Exclusion Criteria

- Antenatal mother those who are exposed to previous health education are not participate in the study.

DEVELOPMENT OF THE TOOL

The tool was prepared by the investigator with expert opinion from Nursing, Obstetrician, Dentist and various references with extensive review of literature and other sources. The tool was translated in Tamil language and used. A structured interview schedule was used to elicit response from the patients.

DESCRIPTON OF THE INSTRUMENT

The tool used for this study consists of two parts

Part-I

It consists of demographic variables of mother which include age, religion, educational status, occupation, family income, gravida and gestational weeks of pregnancy.

Part-II

It consists of structured interview questionnaire on periodontal disease , which includes sub-topic of causes, clinical features, diagnostic evaluation, treatment, prevention and control.

SCORE INTERPRETATION

The structured interview questionnaire consists of twenty five multiple choice questions prepared by investigator. Total score was twenty five. Each correct answer was given a score of one and wrong answer was given a score of "zero".

$$\text{Score Interpretation} = \frac{\text{obtained Score}}{\text{Total Score}} \times 100$$

The score is interpreted as below

< 50 % - Inadequate knowledge

51- 75% - moderate adequate

> 76% - Adequate knowledge.

CONTENT VALIDITY

According to Polit and Cheryl, content validity refers to an instrument adequately represent the universe of content for the concept being measured. Content validity of the tool was obtained from 6 experts, out of which 4 were nursing personnel and 2 were Gynecologist and Dentist. The suggestion given by validates are included. The suggestions of experts were incorporated in the final preparation of the tool.

RELIABILITY

According to Polit and Cheryl, reliability refers to the accuracy and consistency or dependability with which an instrument measures an attribute. The reliability of the tool was elicited by using test - retest method, where six respondents were chosen and Information Education Communication Package given and questionnaire collected through structured interview method. Then 'r' was computed for finding out the reliability. It was found that the 'r' for the knowledge on prevention on periodontal disease was 0.75 by using the formula.

$$r = 1/n\ (\sum XY) - XY/\ SD(x).\ SD(y)$$

So it was highly positively correlated, indicating that the tool was highly reliable.

PILOT STUDY PROCEDURE

The pilot study was conducted during the period 18.09.2012 to 26.09.2012 at Out Patient Department of the Padi Health Post in Chennai. The ethical clearance was obtained from ethical clearance committee, Saveetha College of Nursing, Saveetha University. Content validity was obtained from Obstetrician, Dentist and Nursing experts. Suggestions made by the experts were incorporated in the study. The purpose of the pilot study was to determine the feasibility of the main study to refine and modify the instruments. Ten samples were selected by using purposive sampling techniques. The demographic data was collected by using multiple choice questionnaires. After selecting the sample for the study, the group was explained about the study and informed consent was obtained. Confidentiality was maintained. Pre test was conducted by interview questionnaire to assess the level of knowledge on periodontal disease, which includes sub-topic of causes, clinical features, diagnostic studies, treatment, prevention and control. Then IEC Package was implemented to the samples. After 7 days, post test was done. The reliability of tool was tested by Karl Pearson's correlation coefficient method. After the pilot study, no changes were made in questionnaire. The pilot study was found to be feasible.

DATA COLLECTION PROCEDURE

After obtaining a formal permission from the Principal, Saveetha College of Nursing and the Zonal Officer, in Padi health post, Chennai. The main study was conducted from 5-10-2012 to 4-11-2012 at Padi health post, Chennai. Sixty samples who met the inclusive criteria were selected by using purposive sampling technique. Each day 5 samples were selected and after selecting the samples, the study was explained and informed consent was obtained from each sample, privacy was provided and confidentiality was maintained. Pre test was conducted in the antenatal OPD, by using structured interview schedule which consists of part I demographic variable and obstetric variable, part II structured Questions for 5 antenatal mothers one by one daily on the same day and a time limit of 45 to 50 minutes was taken for each sample to interview. After the pre test, all the 5 antenatal mothers was seated comfortably at the OPD and the Information Education Communication package was administered for 40 -45 minutes using flip chart, handout, PowerPoint and videos.

Information Education Communication package contained information regarding causes, clinical features, diagnostic studies, treatment, prevention and control of Periodontal Disease. 15 minutes were allotted for discussion and doubts were clarified. Reinforcement was given on alternative days and the post test was conducted by the investigator after 7 days using the same structured interview Questionnaire.. The same procedure was followed for all the 60 samples.. Samples were very cooperative during data collection.

PLAN FOR DATA ANALYSIS

The data collection was analyzed using descriptive and inferential statistics based on the objectives of the study.

Table 2: Data Analysis and Statistical Methods Used

S. No	Data Analysis	Methods	Remarks
1.	Descriptive Statistics	Number, percentage, Mean and standard deviation	To assess the level of knowledge regarding periodontal disease among antenatal mothers in the pretest.
2.	Inferential Statistics	Paired 't' test Chi- square test	To determine the effectiveness of IEC package on periodontal disease in terms of knowledge among antenatal mother To determine the association between post test knowledge and selected demographic variables.

Table 3: Data Collection Schedule

SL.NO	No of Sample	Pre Test	Post Test
1	5	5/10/2012	12/10/2012
2	5	06/10/2012	13/10/2012
3	5	07/10/2012	14/10/2012
4	5	08/10/2012	15/10/2012
5	5	09/10/2012	16/10/2012
6	5	10/10/2012	17/10/2012
7	5	11/10/2012	18/10/2012
8	5	12/10/2012	19/10/2012
9	5	13/10/2012	20/10/2012
10	5	14/10/2012	21/10/2012
11	5	15/10/2012	22/10/2012
12	5	16/10/2012	23/10/2012

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis of data collected from 60 Antenatal mothers. The data analysis was done by using descriptive and inferential statistics. The analyzed data was presented into three sections as given below

Section-I: Describes the distribution of frequency and percentage of selected demographic variables among antenatal mothers.

Section–II: Describes the Frequency and percentage distribution of Overall Level of Knowledge on Periodontal Disease among Antenatal Mother

Section-III: Describes the effectiveness of pretest knowledge and Posttest knowledge on periodontal disease among antenatal Mother.

Section-IV: Describes the Association between Level of Knowledge and demographic variables among Antenatal mothers.

SECTION- I

Table 4: Distribution of Frequency and Percentage of Selected Demographic Variables among Antenatal Mothers (n=60)

S. No	Demographic Variables	Frequency	Percent
1	**Age**		
	21-24 yrs	45	75.0
	25-28 yrs	12	20.0
	> 28 yrs	3	5.0
2	**Religion**		
	Hindu	44	73.3
	Christian	6	10.0
	Muslim	10	16.7
3	**Marital_status**		
	Married	60	100.0
4	**Education**		
	Illiterate	19	31.7
	Primary	18	30.0
	Secondary	15	25.0
	College	8	13.3
5	**Occupation**		
	Housewife	51	85.0
	Coolie	4	6.7
	Private employee	5	8.3
6	**Income**		
	Below 3000	30	50.0
	3001-4000	22	36.7
	4000 – 5000	5	8.3
	Above 5000	3	5.0
7	**Dental Problem**		
	Yes	1	1.7
	No	59	98.3
8	**Periodontal Disease**		
	No	60	100.0
9	**Obstetrical variables**		
	Primi Gravida	49	81.7
	Multi Gravida	11	18.3

Table 4. Reveals the frequency and percentage of demographic obstetric variables regarding, age 45 (75%) belongs to 21 -24 years, 12(20%) belongs to 25-28 years, three samples (5%) belongs to >28 years. In religion 44 (73.3%) belongs to Hindu, six (10.0%) belongs to Christian and ten (16.7%) belongs to Muslim. Considering education 19(10%) had no formal education, 18(30%) had primary education, 15 (25%) had secondary and eight (13.3%) had collegiate education. Regarding occupation 51 (85%) were housewife, four (6.7%) are coolie and five (8.3%) were private employee. 30 (50%) had family income below Rs.3000, 22 (36.7%) had Rs.3001-4000, five (8.3%) had Rs. 4001-5000, three (5%) had above Rs.5000. One (1.7%) had dental problem and 59 (98.3%) does not have any dental problems. 49 (81.7%) were primigravida and eleven (18.3%) were multigravida.

SECTION-II

Table 5: Frequency and Percentage Distribution of Overall KNOWLEDGE on Periodontal Disease among Antenatal Mother in the pretest. (n=60)

Level of Pretest Knowledge	IEC Package on Periodontal Disease	
	Frequency	Percentage (%)
Inadequate Knowledge	43	71.7
Moderately Adequate Knowledge	11	18.3
Adequate Knowledge	6	10.0
Total	60	100.0

Table 5: Shows the overall level of Knowledge on Periodontal Disease among Antenatal Mother, Among 60 samples, 43(71.7%) had inadequate knowledge, 11(18.3%) had moderately adequate knowledge and six(10.0%) had adequate knowledge on Prevention of Periodontal Disease.

Table 6: Frequency and Percentage Distribution of overall Knowledge on Periodontal Disease among Antenatal Mother in the Post Test. (N=60)

Level of Posttest Knowledge	IEC Package on Periodontal Disease	
	Frequency	Percentage (%)
Inadequate Knowledge	4	6.6
Moderately Adequate Knowledge	22	36.7
Adequate Knowledge	34	56.7
Total	60	100.0

Table 6 shows the overall level of Posttest knowledge on Periodontal Disease among Antenatal Mother. Among 60 samples four (6.6%) had inadequate knowledge, 22 (36.7%) had moderately adequate knowledge and 34 (56.7%) had adequate knowledge regarding Prevention of Periodontal Disease.

SECTION -III

Table 7: Effectiveness of Pretest Knowledge and Posttest Knowledge on Periodontal Disease among Antenatal Mother (N=60)

Group	MEAN	SD	t-Value
Pretest Knowledge	44.00	18.64	14.851
Posttest Knowledge	75.93	16.17	

S–Significant difference between Pre and Post Test Knowledge [$P < 0.05$]. Our calculated p value is 0.0001 which is lesser than the 0.05.

Table 7 shows the effectiveness of Pretest knowledge and Posttest knowledge on Periodontal Disease among Antenatal Mother

In that 60 samples, pretest mean deviation was 44.000 with standard deviation of 18.6457. In post test mean deviation was 75.933 and standard deviation was 16.1768. Significant difference between Pre and Post Test Knowledge [$P < 0.05$].

SECTION- IV

Table 8: Association between Level of Knowledge on Periodontal Disease and Demographic Variables among Antenatal Mothers in the Posttest

Demographic variable Post Test Knowledge								
	Inadequate Knowledge		Moderately Adequate		Adequately Knowledge		Chi Square Test	P Value
Age	**N**	**%**	**N**	**%**	**N**	**%**		
21-24 yrs	3	6.7	18	40	24	53.3	5.679	0.224 NS
25-28 yrs	0	0	3	25	9	75		
> 28 yrs	1	33.3	1	33.3	1	33.4		
Religion								
Hindu	2	4.6	18	40.9	24	54.5	6.206	0.184 NS
Christian	0	0	3	50	3	50		
Muslim	2	20	1	10	7	70		
Marital Status								
Married	4	6.7	22	36.7	34	56.6	NA	NA
Education								
Illiterate	3	15.8	6	31.6	10	52.6	11.551	0.073 NS
Primary	1	5.6	8	44.4	9	50		
Secondary	0	0	8	53.3	7	46.7		
College	0	0	0	0	8	100		
Occupation								
Housewife	4	7.8	17	33.4	30	58.8	3.238	0.519 NS
Coolie	0	0	3	75	1	25		
Private Employee	0	0	2	40	3	60		
Income								
Below 3000	3	10	12	40	15	50	3.650	0.724 NS
3001-4000	1	4.5	8	36.4	13	59.1		
4000 – 5000	0	0	2	40	3	60		
Above 5000	0	0	0	0	3	100		
Dental Problem								
Yes	0	0	0	0	1	100	0.778	0.678 NS
No	4	6.8	22	37.3	33	55.9		
Periodontal Disease No	4	6.7	22	36.7	36	56.6	NA	NA
Obstetrical								
Primi Gravida	3	6.1	19	38.8	27	55.1	0.558	0.756 NS
Multi Gravida	1	9.1	3	27.3	7	63.6		

NA – Not applicable NS – Not significant _ No Association between Demographical Variables with Post Test Knowledge.

Table 8 reveals the association between posttest level of knowledge and selected demographic variables among antenatal mothers. By using chi- square, it was statistically found that there was no association between level of knowledge and demographic variables such as age, sex, educational status, religion, occupation, income and obstetrical status among antenatal mothers at the level of $P<0.05$.

DISCUSSIONS

The present study was under taken to assess the effectiveness Information Education Communication (IEC) package on prevention of periodontal disease among Antenatal Mother at Padi Urban Health Post, Chennai. The data was collected from antenatal mothers who were attending the out-patient department in Padi health post, Chennai. The data was collected by using structured Interview questionnaire related to prevention of periodontal disease. After collecting

information from the samples regarding knowledge on Periodontal Disease, Information Education Communication Package was administered to Antenatal Mother at Urban Health Post, Chennai.

- **The First Objective of the Study was to Assess the Level of Knowledge Regarding Periodontal Disease among Antenatal Mother in the Pre Test.**

In this present study, it is revealed from table 5 the overall level of Pretest Knowledge on Periodontal Disease among Antenatal Mother. Among 60 samples, 43 (71.7%) had inadequate knowledge, 11 (18.3%) had moderately adequate knowledge and six (10.0%) had adequate knowledge. It is supported by various studies.

A New National Consumer usage and Attitudes Survey (2009) was conducted across 233 cities by India, revealed that dental problems in India are due to the low awareness levels and poor oral hygiene habits in people. Survey showed that people do not associate dental health with adequate oral care but associate dental problems with lifestyle related habits like 'improper eating habits' and 'being born with bad teeth' in rural areas. This survey concluded that 74% aware of the prevalence of swollen gum, but 66% were unconcerned, 78% aware of prevalence of but 63% were unconcerned.

Noochpoung Rakchanok1, et al(2008) conducted a study on dental caries and gingivitis among pregnant women, and to compare with non-pregnant women in Chiang Mai, Thailand among 197 women (94 pregnant and 103 non-pregnant). The study concluded that most women should be trained in proper oral hygiene practices and community awareness programs should be organized to increase women's awareness of such hygienic practices.

- **The Second Objective of the Study was to Determine the Effectiveness of Information Education Communication Package on Prevention of Periodontal disease among Antenatal Mothers.**

Among 60 samples four (6.6%) had inadequate knowledge, 22 (36.7%) had moderately adequate knowledge and 34 (56.7%) had adequate knowledge regarding Prevention of Periodontal Disease in the posttest.

These findings established the important roles of oral health education to improve knowledge and increase awareness that would in turn progress the mothers' dental care-seeking behavior. Provision of oral health education to all antenatal mothers should be made mandatory in attempt to improve uptake of services. Oral health education could be used as a behavioral technique to alleviate dental fear among the mothers by making them more at ease and familiar with the dentist and the forthcoming treatment procedures. All misperceptions and erroneous conception about the safety of dental treatment that may donate to the low rate of service utilization can be corrected.

- **The Third Objective of the Study was to Associate the Post Test Level of Knowledge and the Selected Demographic Variables.**

It is revealed from table: 8 that the association between posttest level of knowledge and selected demographic variables among antenatal mothers. In posttest was no association between level of knowledge and demographic variables such as age, sex, educational status, religion, occupation, income and obstetrical status among antenatal mothers at the level of $P<0.05$.

It is supported by a study **N.J LOPEZ, P.C. SMITH ET AL (2012)** conducted a study on pregnant women with periodontal disease (PD) may be at increased risk for having preterm low-birth-weight (PLBW) children among 639 women in Hospital San José, Santiago, Chile. The results showed that 406 had gingivitis and received treatment before 28

weeks' gestation, and 233 had PD and were treated after delivery. Primary outcomes were delivery before 37 weeks' gestation or an infant with birth weight below 2500 g. The incidence of PLBW was 2.5% in periodontally healthy women, and 8.6% in women with PD.

SUMMARY, MAJOR FINDINGS, NURSING IMPLICATION AND RECOMMENDATIONS

Summary of the Study

Pre experimental design was used in this study to assess the effectiveness of IEC Package on prevention of periodontal disease among antenatal mother at Padi Urban Health Post in Chennai.

The main study was conducted for the period of four weeks after obtaining ethical clearance from ethical committee, Saveetha University, Thandalam. Permission was obtained from Zonal officer, Padi health Post, Chennai. Using purposive sampling technique method. Sixty samples were selected. Daily five samples were selected. 60 samples who met the inclusive criteria were selected as sample for the study. The structured interview questionnaire method was used to collect the data regarding periodontal disease and after collecting information from samples, the knowledge was enriched by administered Information Education Communication Package and posttest was conducted.

MAJOR FINDINGS OF THE STUDY

- The overall level of Pretest Knowledge on Periodontal Disease among Antenatal Mother was forty three (71.7%) had inadequate knowledge, eleven (18.3%) had moderately adequate knowledge and six (10.0%) had adequate knowledge.
- The overall level of Posttest knowledge on Periodontal Disease among Antenatal Mother was four (6.6%) had inadequate knowledge, twenty two (36.7%) had moderately adequate knowledge and thirty four (56.7%) had adequate knowledge.
- The overall level of Paired sample statistics of Pretest knowledge and Posttest knowledge on Periodontal Disease Among Antenatal Mother was 60 samples, pretest mean deviation was 44.00 with standard deviation of 18.64.In post test mean deviation was 75.93 with standard deviation was 16.17. Significant difference between Pre and Post Test Knowledge [$P < 0.05$].
- By using chi- square, it was statistically found that there was no association between post test level of knowledge and demographic variables such as age, sex, educational status, religion, occupation, income and obstetrical status among antenatal mothers at the level of $P<0.05$.

Nursing Implications

- The present study can help nurses to enrich their skills and knowledge on nursing care for Periodontal disease among antenatal mothers.
- The study may help the nurses to provide effective teaching to enrich the knowledge of antenatal mothers to prevent periodontal disease.

Nursing Education

- Efforts should be made to improve and expand nursing curriculum to provide more content in the area of nursing care for antenatal mothers and train students in assessing, teaching and caring antenatal mothers to prevent periodontal disease.
- Conference, workshops, seminars can be conducted for nurses to impart education towards the care of antenatal mothers to prevent Periodontal Disease.
- Students should be provided with adequate opportunities to develop the skills in handling the antenatal mothers and to identify their problems and help them to promote comfort and wellbeing.

Nursing Service

- Nurse working in different organization provide awareness on regular antenatal check up including dental.
- Nurse working in community health centre and voluntary health workers goes for regular house visit, identify their level of knowledge and help them attend regular antenatal checkup to prevent periodontal disease.
- Nurse, as a counselor should provide counseling and guidance to the antenatal mothers and their family members about the condition.

Nursing Administration

- Nurse Administrators can make necessary policies to implement the dental care services for the antenatal mothers.
- Nurse Administrators can organize in-service education program and adequate staffing in maternity wards for an effective nursing care including dental care to prevent periodontal disease.
- The nurse administrator should give attention on the proper selection, placement and effective utilization of the nurses in all areas with their interest, creativity and ability to provide education and training for the antenatal mothers and their care givers about periodontal disease.
- The nurse administrator should arrange seminar, conference and workshop related to awareness on prevention of periodontal disease and its complication.

Nursing Research

- The findings of the study help the maternity nurses and students to develop the enquiry by providing baseline about periodontal disease. The general aspect of the study result can be made by further replications of the study.
- A nurse researcher can provide supportive care measures which may improve knowledge among antenatal mothers to prevent periodontal disease.
- The study will be a valuable reference material for future researcher.

RECOMMENTATIONS

- The policy of early dental check up must be routinely communicated and training must be given to all the health care staff.

- The nurse should consider the psychological aspects of the mother also to maintain the quality of care.
- Nurse should enhance the therapeutic nurse patient relationship for the better understanding of their needs.

SUGGESTION FOR FURTHER STUDY

- The same study can be conducted as a True experimental research design
- Similar study can be conducted in other parts of the country with a larger sample.
- The similar study can be conducted in different settings like rural and urban areas in the community settings.
- A descriptive study can be done to assess the knowledge among antenatal mothers on prevention of periodontal disease.
- A same study can be done like a comparative study between primi and multigravida mothers on prevention of periodontal disease.
- Similar study can be done to assess the Knowledge, Practice and attitude among antenatal mothers on prevention of periodontal disease.
- A qualitative study can be done to assess the Practice and attitude among antenatal mothers on prevention of periodontal disease.

CONCLUSIONS

The study revealed that most of Antenatal mothers gained knowledge after administration of Information Education Communication (IEC) package on prevention of Periodontal disease. Health education promotes changes in health seeking behavior.

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